



**TRUE NORTH
INSTITUTE**

**Institutional Investor
Performance Ranking Series**
(1st Edition)

Analysis of Large US University Endowment Outperformance

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This publication has been produced by the True North Institute which was founded by Stan Miranda in 2023. True North is an independent philanthropic organization dedicated to the creation of seminal pieces of investment research. The Institute's audience includes Chief Investment Officers of large and small institutional pools of capital. This includes sovereign wealth funds, pensions, insurance companies, foundations, endowments and family offices.



Executive Summary

The True North Institute's mission is to explore new approaches to institutional investment management. Over the last 25 years, the so-called "Endowment Model" has been generally viewed to be the approach to follow. Many endowments, foundations, pensions, sovereign wealth funds and family offices have migrated their portfolios in this direction, focusing on high static risk and multi-asset class allocations with a bias toward private equity and other illiquid asset classes. This whitepaper examines the trend in historical investment performance of the leading endowment practitioners of this model, as measured by excess return or alpha over and above the most appropriate risk-matched benchmark.

A simple ranking of endowment performance by returns does not provide a sense of relative investment success. Total portfolio absolute returns are primarily driven by the overall risk budget of the portfolio including large allocations to illiquid asset classes – primarily comprising private equity. The risk budget should be, in turn, a function of the risk tolerance of a specific university. Investment success is manifested by performance relative to the risk level, i.e. risk adjusted returns, not merely returns.

The learning can be summarised in the following four conclusions from the analysis which follows:

- 1) Outperformance or alpha is becoming more difficult to generate for even the most capable of institutional investors.
- 2) Total portfolio absolute returns are primarily driven by the overall risk budget of the portfolio including large allocations to illiquid asset classes – primarily comprising private equity.
- 3) It is not clear that the large endowments are outperforming the average private equity and venture capital investor. High allocations to private equity do not necessarily translate into high overall portfolio alpha.
- 4) We do not assume that private equity and venture capital will deliver the same level or consistency of returns in the future. Endowments with more diversified sources of illiquidity premium may outperform in the future.

These conclusions should lead all institutional investors who have followed the endowment model or not, to think hard about what evolutionary changes should be incorporated into investment strategies going forward that are not as dependent upon private equity and venture capital continuing to perform as they have been in the past.

Introduction

We are students of all hard-working intelligent institutional investors, including endowments, foundations, pensions, sovereign wealth funds and family offices. This first True North Institute issue of the Institutional Investor Performance Analysis series is solely focused on endowments but, in future issues, we will move on to compare and contrast endowment performance and approaches against those of these other institutional investor cohorts.

The group of 12 US university endowments we have chosen to track and analyse are generally viewed as being among a short list of relatively large (in AUM terms) institutions deploying the best practices for institutional investment management and earning superior investment returns as a result. This belief will have been, at least in part, the result of the publication of the book *Pioneering Portfolio Management* by the then CIO of the Yale University Endowment, David Swensen, in 2000. Whatever its origin, this is still broadly a consensus view in the institutional investment world.

Here are the 12: Brown, Columbia, Cornell, Dartmouth, Harvard, MIT, Notre Dame, U Penn, Princeton, Stanford, University of Virginia (UVIMCo) and Yale. We have quite deliberately avoided providing readers with a named ranking of the 12 endowments studied here. Knowing who is at the top or the bottom was not our goal, but rather we sought to extract the learning around what those endowments at the top did that those at the bottom did not – all focused on risk-adjusted performance or alpha, not absolute return. This decision to disguise the names of endowments in the ranking on alpha is because it is hard, if not impossible, to hold the current in-house endowment investment teams accountable for the results which are focused on a 10-year time frame. Teams change and decisions made 20 years ago can affect outperformance today (e.g., getting access to Sequoia or Benchmark early-stage VC allocations).

There is general consensus among institutional investors that “the endowment model” comprises three key features: 1) high static risk, 2) multi-asset allocation with a bias in favour of private asset classes, and 3) investing primarily via active third-party owner-operated entrepreneurial asset managers aligned by virtue of the managers’ personal assets invested alongside the endowments.

It is our belief that there are many other investment models beyond the endowment model that have demonstrated strong performance. These would include Canadian pensions with their in-house private market teams and sovereign wealth funds like GIC, with their model of building relationships with asset managers that serve as platforms for different thematic investment strategies. While Partners Capital’s PRMEA model derives its origins from the endowment model, it embeds constructs from many different models including the Canadian pensions and select sovereign wealth funds.

Do we have enough information from public sources to assess outperformance?

We publish this whitepaper with full recognition that this may be our most controversial, as each one of the 12 endowments that are the subjects of this whitepaper are likely to disagree with our calculations of their outperformance or alpha. They will be right, and we will be wrong. The subject endowments each have all the facts about their portfolios, that we wish we had. Without such non-public information it is indeed challenging to conclude with high levels of confidence, what drives their absolute investment performance and outperformance. However, after completing this exercise, we believe we have sufficient

publicly available information to estimate the approximate quantum of excess return or alpha for each of these endowments. We have consciously attempted to bias the benchmarks toward lower risk measures which will have the effect of over-estimating alpha, rather than underestimating it (e.g., absolute return hedge funds assumed to have equity risk that is 10% of the equity market).

Before embarking on this analysis, we of course had our own data driven conclusions about what drives outperformance among thoughtful, well-resourced institutional investors, as we have had complete transparency into hundreds of Partners Capital client portfolios for over two decades. Our “day job” is to study what works and what doesn’t among these several hundred client portfolios. Many of these insights are shared in Partners Capital whitepapers located in the Intellectual Capital Library (ICL) at Partners-Cap.com. We would draw your attention, in particular, to the whitepaper on PRMEA, the Partners Capital approach to institutional investing which has been developed over the 23 years of the firm’s history.

Our motivation for applying our “performance attribution toolkit” to the past performance of these 12 US university endowments is fuelled by the relatively intense interest that the institutional investment world has in learning from this group of investors. Many investors follow closely the performance rankings based on the absolute performance of these endowments’ overall portfolios and know full well that these rankings need to be risk-adjusted before they can draw many useful conclusions. So, this is our attempt to do that, by providing two benchmark measures that go a long way towards providing a more informative, risk adjusted ranking. With these, we examine what factors appear to explain long-term performance among these 12.

Our Benchmarking Approach

The first benchmark converts the asset allocation of each endowment into a single equity equivalent risk measure (what we call equivalent net equity beta or “ENEB”) and applies this the performance of a the MSCI ACWI global equity index. This is an investible benchmark to the extent that, for example, a 70% ENEB risk level can be replicated with 70% of the capital allocated to public equities and 30% to cash. This benchmark gives the endowment team credit for allocations to illiquid asset classes, which are being benchmarked against liquid alternatives. Hence, the illiquidity premium is included in the calculated amount of alpha.

The second benchmark is a blended set of asset class indices’ performance, weighted by the asset allocation of the endowment in each year. We refer to this simply as the “asset allocation benchmark.” There are two versions of the asset allocation benchmark – one using a set of indices that may not necessarily be investible, and the other only using investible indices. We will only use the non-investible asset allocation benchmark as the ENEB benchmark replicates index-based performance that is very close to that of an investible multi-asset class benchmark.

The asset class benchmarking methodology is fraught with sources of potential error and misguided conclusions, but we believe it creates a more meaningful view on performance that adds information to a ranking based on simple historical absolute portfolio return figures. Below, and in the footnotes, we show the benchmarks we have chosen for each asset class:

Benchmarks (including non-investible)

Domestic Equities	S&P 500 NR Index
International Equities	MSCI AC World ex USA NR USD
Developed Markets	MSCI World NR LC
Emerging Markets	MSCI EM (Emerging Markets) NR USD
Global Equities	MSCI AC World NR LC
Absolute Return	0.1x MSCI ACWI NR LC + 0.9x 3m US T-Bills
Long/Short Equity	½ MSCI ACWI NR LC + ½ 3m US T-Bills
Leveraged Buyouts	Cambridge Associates U.S. Leveraged Buyout
Venture Capital	Cambridge Associates U.S. Venture Capital
Private Equity	¼ Cambridge Associates U.S. Venture Capital + ¾ US Leveraged Buyouts
Hedge Funds	0.1x MSCI ACWI NR LC + 0.9x 3m US T-Bills
Natural Resources	S&P Global Natural Resources Index
Real Estate	Preqin Real Estate Opportunistic Index (lagged 3 months) TR LC
Bonds/TIPS	Barclays Capital US Treasuries 5-10 Year TR
Corporate Debt	Barclays Capital Global Corporate BBB TR
Private Credit	State Street Private Debt - Mezzanine TR USD
Fixed Income	Barclays Capital US Treasuries 5-10 Year TR
Cash and short-term	US Treasury Bills 3Mth

Notes: “AC” stands for all country, which indicates the index covers 47 of the world’s largest equity markets. “NR” stands for net return which indicates that it includes dividends net of taxes withheld. “LC” stands for local currency returns with no currency gains or losses from taking return back to USD or any other currency. “TR” stands for Total Return which implies the total of interest income, gains and losses in the case of debt asset classes. In the case of real estate, it includes rental income, gains and losses.

Please read the appendix at the back of this document for a full explanation of our bench-marking methodology used to arrive at our estimates of value-added for any given investor.

We refer to the difference between the endowment’s return and either of the two benchmarks as “alpha” or outperformance. This is the value added from the investment team managing each endowment portfolio.

Neither measure will be a completely accurate risk-adjusted measure of alpha. Asset class definitions will differ between endowments, leading to differences in both the level and types of risk taken. For example, two endowments may list “hedge funds” as an asset class, but one may define this to include long/short equity funds and another may not. But it is our belief that these differences are not so great as to nullify the superiority of this approach of performance ranking vs absolute performance or any other approach we have observed that is restricted to publicly available information.

The largest difference in overall portfolio risk across endowments is most likely to be explained by the size and composition of any given endowment’s private equity allocation. In 9 out of 12 cases where we are not provided with any breakdown of the private equity allocation to venture, growth equity or buyouts, we assume each endowment has a similar 75% mix of buyouts and growth equity and 25% in venture capital. This is broadly in line with the market mix in recent years. Where the endowment does usefully break out venture capital from the rest of their private equity allocation, we assume their venture capital portfolios all have the same risk, even though some will be higher risk than others for many different reasons, including the mix of early vs late-stage VC.

We have applied our model of performance benchmarking consistently to each of the 12 endowments with no subjective adjustments, even where we have qualitative indications from the endowment to the contrary. For example, Brown University has written recently that their private equity is over 50% allocated to VC. We maintained our 25% allocation rule, as we do not know how this allocation changed over the last 10 years, which is the period of this analysis.

No endowment will agree precisely with our estimate of their outperformance. However, we would hope that each endowment will appreciate our estimate of every other endowment's outperformance and, as a result, will similarly appreciate the conclusions we draw across the 12.

Alpha estimates will be least meaningful using performance measured over short periods of time, such as one or three years. We would argue that 10- and 20-year track records are most meaningful for answering the performance question about how well the institution has managed its endowment portfolio, independent of its changing investment management team and investment committee. However, in the attached analysis, we provide rankings based on value-added over 1-, 3-, 5- and 10-year time frames. Beyond 10 years, there is insufficient asset allocation information to undertake this analysis.

The Results

The absolute returns for our chosen group of 12 leading endowments over the 10-year period ending June 2023 have averaged an impressive 10% p.a. The highest is MIT at 11.5%, 3.4% ahead of the lowest average annual return of 8.1%. These are the numbers that we all find to be relatively unhelpful in assessing which endowments have most outperformed for a given level of risk they are taking. Risk adjusting these returns shown below is what this whitepaper is all about, without focusing on rankings and "winners and losers." We are mostly interested in seeing the trend in the quantum of alpha for the overall group and what appears to explain higher and lower levels of alpha for individual endowments.

Exhibit 1: The range of absolute performance over the 10-Year period ending 30 June 2023

Endowment	MIT	Brown	Yale	Princeton	Notre Dame	Dartmouth	UVIMCo	U Penn	Stanford	Cornell	Harvard	Columbia	Average	Hi-Lo Range
10-Yr Annual Absolute Return	11.5%	11.3%	10.9%	10.8%	10.6%	10.5%	9.8%	9.7%	9.5%	8.4%	8.2%	8.1%	10.0%	3.4%

Source: Respective University Endowments

The average annual alpha calculated from the **Equity-like risk (ENEB) benchmark** over the 10-year period is 2.7% p.a. This effectively risk adjusts the absolute performance of each endowment for the amount of equity-like risk it is taking. This measure quantifies the performance of a portfolio with any given asset allocation that is in excess of what it would earn with an allocation to equities and cash that amounted to the same overall risk level in equity terms. In essence, this is the return on investment in the endowment investment team whose efforts are mostly related to exploiting the illiquidity premium that is earned from allocating to private equity, property and private debt. The highest alpha-generating investor using this measure after 10 years has beat the average of the 12 by 1.4% p.a. and the lowest alpha-generating

investor has underperformed the average by 1.0%. Keeping in mind the power of compounding, these are large differences. \$100 earning 4.1% vs. 2.7% vs 1.7% on top of the average of 7.0% market beta return, after 10 years, would be worth \$288, \$252, and \$230, respectively.

Exhibit 2: Over the 10-Year period, alpha measured against the Equity-like risk (ENEB) benchmark ranges from 4.1% to 1.7% with a mean of 2.7%.

10-Year Endowment vs ENEB Benchmark

ENEB Alpha Rank	1	2	3	4	5	6	7	8	9	10	11	12	Mean	Hi-Lo Range
Endowment Code	B	C	A	D	F	H	E	J	I	G	K	L		
ENEB Alpha	4.1%	3.4%	3.2%	3.1%	3.1%	2.9%	2.3%	2.3%	2.2%	2.2%	1.9%	1.7%	2.7%	2.5%

Source: True North Institute analysis of publicly available data

The **asset allocation benchmark** is a much tougher benchmark, as it only gives the endowment team credit for returns in excess of average performance for each asset class, even if that average performance is not strictly achievable through some passive version of what they do. For example, we use the Cambridge Associates private equity benchmarks for the asset class benchmark and, strictly speaking, there is no private equity fund of funds or other means of passively earning these returns. So this asset allocation benchmark is a measure of beating the average performance of each asset class. We believe this to be the toughest, but the most meaningful measure of an endowment team's contribution to the portfolio's performance.

The average annual alpha calculated using the non-investible asset allocation benchmark over this 10-year period is +1.2% p.a. On average, across the 12 endowments, annual performance of the asset class benchmark would have been 8.8% p.a. compared to the 10.0% actually earned, over the 10 years ending 30 June, 2023. We stress that we do not have the detail of the level of individual asset class returns, as each endowment reports a different set of statistics, so these alpha calculations are performed on the aggregate absolute return against a blended set of non-investible asset class benchmarks.

Exhibit 3: Over the 10-Year period ending 30 June 2023, alpha measured against the tougher Asset Allocation Benchmark ranges from 2.6% to -0.2% with a mean of 1.2% p.a.

10-Year Endowment Return vs. Asset Allocation Benchmark

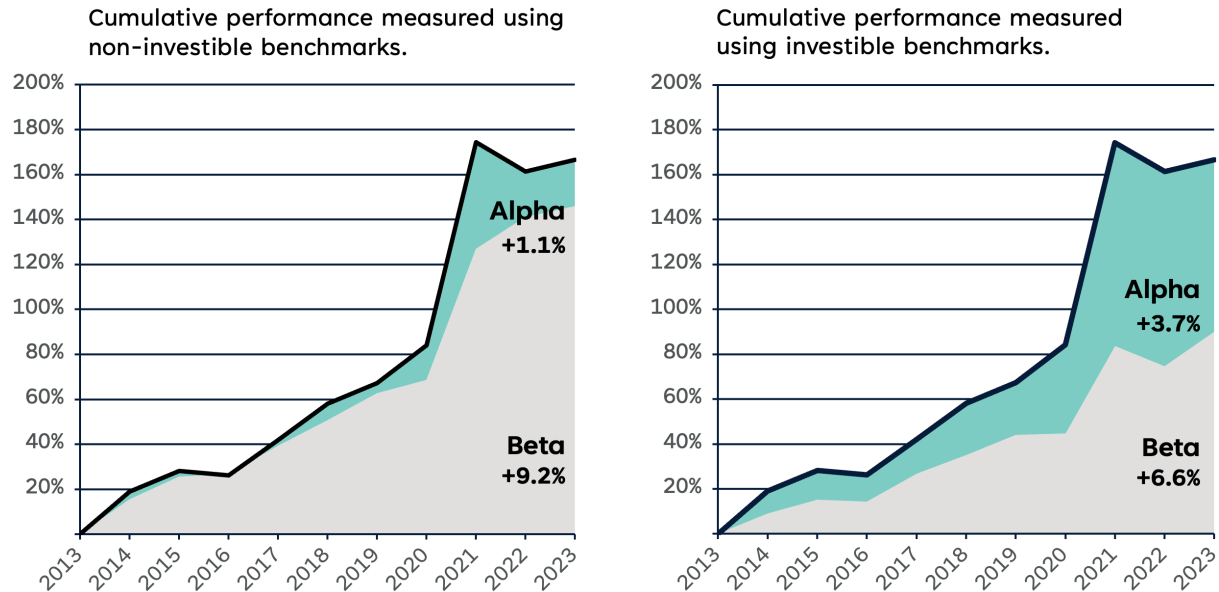
Asset Allocation Alpha Rank	1	2	3	4	5	6	7	8	9	10	11	12	Mean	Hi-Lo Range
Endowment Code	B	C	A	D	F	H	E	J	I	G	K	L		
Asset Allocation Alpha	2.6%	2.3%	2.1%	1.6%	1.3%	1.2%	1.1%	1.0%	0.5%	0.4%	0.1%	(0.2%)	1.2%	2.9%

Source: True North Institute analysis of publicly available data

When applying investible benchmarks in the asset allocation benchmark approach, interestingly we arrive at a similar average of 3.0% alpha compared to the 2.7% average alpha calculated using the ENEB based benchmark. In creating the asset allocation benchmark from investible indices, we used public equities as the investible benchmark for private equity and public REITs indices as the investible index for private property investments. Over this 10-year period, a 25/75 mix of VC/Private equity has beaten the MSCI ACWI public equities index by 6.0% p.a. With an average PE allocation of 30% over the last 10 years, this

points to 1.8% of the 3% outperformance coming from private equity. The remaining 1.2% conveniently tallies to our estimate of alpha over the asset allocation benchmarks. We illustrate the significant difference in the use of non-investible and investible benchmarks below with Endowment G showing 21% cumulative alpha over 10 years against the non-investible benchmark vs 77% against an investible benchmark.

Exhibit 4: Endowment G earned 1.1% of alpha p.a. when measured using non-investible benchmarks but earned 3.7% alpha p.a. when measured using investible benchmarks.



Source: True North Institute analysis of publicly available data

Note: non-investible benchmark uses Cambridge Associates indices for private equity and Preqin indices for real assets. The investible private equity benchmark is represented by 0.6 iShares S&P 500 Index Fund + 0.4 iShares MSCI Hedged EAFE Index Fund and real assets by the iShares Global REIT ETF.

In essence, what you see above is that by successfully allocating to private equity, Endowment G has earned what some investors refer to as the “illiquidity premium” from locking up a portion of the portfolio’s assets in long-term asset classes like private equity. Using that construct, the majority of the alpha earned against the investible benchmark shown in Exhibit 4 represents illiquidity premium that an investor may be able to earn by investing in a large private equity fund of funds.

Readers of this whitepaper can draw their own conclusions for how much credit should be given to endowment teams for putting together a private equity portfolio that outperforms public equities. In our view, it is a value-added activity, but should be valued less than the alpha generated in excess of the average private equity portfolio. If we were to use the investible benchmarks (e.g., public equity beta vs Cambridge Associates indices for private equity), this would simply conclude that whichever endowment has the highest allocation to private equity, will have the largest amount of outperformance or alpha. We do not assume that illiquidity premium is easy to earn, but it should be distinguished from performance in excess of average illiquid asset class performance. Hence, the rest of this document measures both types of alpha for each endowment.

Moving to shorter time frames, the last five years have seen a very consistent maintenance of alpha measured against our investible ENEB benchmark at 2.8% p.a. for both three years and five years vs 2.7% over 10 years. This 3-year alpha generation of 2.8% vs the ENEB benchmark reflects the strong performance

of private equity during 2020-22 relative to public equities, prior to giving a lot of the difference back in FY 2023. This suggests to us that the illiquidity premium has remained intact over the last 10 years.

The single fiscal year ending June 2023 was potentially the worst year for alpha on record for the endowments calculated against either benchmark. This is no cause for alarm as it was a short period where public equities significantly outperformed private equity and venture capital, and largely reflects time lags between when private and public equities are marked. For the FY 2023, the MSCI ACWI global equity index was up 16.5% vs the Cambridge Associates US Buyout index +8.0% and US VC index down -10.2%. A blended 75% PE / 25% VC index was up 3.4% vs 16.5% for public equities. The asset allocation benchmark adjusts for this, but still showed wide dispersion of performance with no endowment beating its asset allocation benchmark in this short 12-month period.

Our focus is very much on the trend from 10 to five to three-year alpha using the non-investible benchmark. This shows the 1.2% average annual alpha over 10 years, falling to 0.7% over the last five years and then to 0.1% over the last three years. Despite what we just said about 10-to-20-year time frames being the most relevant, we cannot ignore this disturbing trend.

Exhibit 5: Average University Endowment Performance over 1-, 3-, 5- and 10-year periods (for 12 endowments)

Period	Absolute Returns	Equiv. Net Equity Beta Benchmark		Asset Allocation Blended Benchmark	
	Average Absolute Performance	ENEB Benchmark	Alpha vs ENEB Benchmark	Asset Allocation Benchmark	Alpha vs Asset Allocation Benchmark
1-Year	1.8%	13.8%	(12.0%)	5.3%	(3.5%)
3-Year	12.3%	9.5%	2.8%	12.2%	0.1%
5-Year	10.1%	7.2%	2.8%	9.4%	0.7%
10-Year	10.0%	7.3%	2.7%	8.8%	1.2%

Source: True North Institute analysis of publicly available data

Where alpha goes from here for the 12 endowments therefore depends most on where the relative pricing of private equity (including VC) and public equities goes. As of this writing (10 May 2024), global equities (MSCI ACWI \$ ETF) is up 14.7%, from 1st July 2023. While we are encouraged by some recent marks in the buyout space, we do not expect to see venture capital marked up in FY 2024, suggesting we may see a similar negative alpha mark in FY 2024 relative to the investible ENEB benchmark.

Stepping back and looking at this pattern of declining alpha, we do not have sufficient information to unpick the drivers of this. The possible explanations for the alpha figures shown in the table above include a) declining ability to identify and access managers who outperform their benchmarks, b) sub-asset class mix within a given asset class (e.g., too much biotech in public equities) or c) mis-estimation of the appropriate risk level in our asset class benchmark. Obviously, it can be a combination of the three. It is our sense that, if we have miscalculated overall portfolio risk, we are understating it, not overstating risk. We expect that the hedge funds or absolute return risk assumption and the private equity risk assumptions, in particular, will understate the actual risk being taken in these asset classes by most endowments.

Below we provide the endowment rankings on alpha for 1-, 3- and 5-year periods ending 30 June 2023 to illustrate that the averages are not skewed by one or two outliers.



Exhibit 6: One-year ending June 2023 Alpha. Alpha vs the ENEB benchmark showed large negative alpha figures. The asset allocation benchmark adjusts for this, but still showed wide dispersion of performance with none of the endowments beating their asset allocation benchmark.

Endowment	Endowment vs ENEB Benchmark		Endowment vs Asset Allocation Benchmark	
	Alpha vs ENEB Benchmark	ENEB Alpha Rank	Alpha vs Asset Allocation Benchmark	Asset Allocation Alpha Rank
H	(13.7%)	10	(1.3%)	1
G	(13.0%)	8	(2.1%)	2
L	(8.8%)	2	(2.2%)	3
K	(7.0%)	1	(2.3%)	4
J	(9.5%)	4	(2.5%)	5
E	(9.3%)	3	(2.7%)	6
B	(11.7%)	5	(3.2%)	7
C	(18.4%)	12	(4.1%)	8
A	(11.8%)	6	(4.4%)	9
D	(12.0%)	7	(5.0%)	10
I	(13.6%)	9	(5.5%)	11
F	(15.0%)	11	(7.0%)	12
Average	(12.0%)		(3.5%)	

Source: True North Institute analysis of publicly available data

Exhibit 7: Three-year Alpha: Shows more normal levels of alpha vs the investible public equity-based benchmark (ENEB), but disappointingly only half of the endowments added value during the last three years against the asset allocation benchmark.

Endowment	Endowment vs ENEB Benchmark		Endowment vs Asset Allocation Benchmark	
	Alpha vs ENEB Benchmark	ENEB Alpha Rank	Alpha vs Asset Allocation Benchmark	Asset Allocation Alpha Rank
B	4.2%	2	1.6%	1
L	4.3%	1	1.6%	2
A	3.8%	3	1.5%	3
G	2.6%	7	1.1%	4
C	2.0%	11	0.7%	5
J	2.5%	8	0.2%	6
D	3.4%	4	(0.0%)	7
I	2.3%	10	(0.4%)	8
F	2.9%	5	(0.6%)	9
H	2.4%	9	(1.1%)	10
E	2.6%	6	(1.2%)	11
K	0.7%	12	(2.0%)	12
Average	2.8%		0.1%	

Source: True North Institute analysis of publicly available data

Exhibit 8: Five-year Alpha: We start to see smoothing here, with an average level of approximately 2.8% of alpha vs the equity-like benchmark (ENEB), but even after 5 years four of the 12 failed to beat the averages for their asset classes.

Endowment	Endowment vs ENEB Benchmark		Endowment vs Asset Allocation Benchmark	
	Alpha vs ENEB Benchmark	ENEB Alpha Rank	Alpha vs Asset Allocation Benchmark	Asset Allocation Alpha Rank
B	5.9%	1	3.3%	1
D	3.5%	2	1.3%	2
A	2.8%	6	1.2%	3
G	3.1%	3	1.1%	4
J	2.9%	5	1.1%	5
C	3.0%	4	1.0%	6
E	2.4%	9	0.9%	7
L	2.5%	8	0.2%	8
I	2.2%	11	(0.0%)	9
F	2.5%	7	(0.2%)	10
H	2.3%	10	(0.5%)	11
K	0.9%	12	(1.1%)	12
Average	2.8%		0.7%	

Source: True North Institute analysis of publicly available data

NACUBO Performance Comparison

The NACUBO Commonfund Study is a long-running study, that in 2023 included 688 colleges, universities, and educational related foundations, representing \$839B of assets. Performance numbers shown are for the median, unweighted performance across this group. The median AUM of this group was \$209M, compared to an average of \$24B for our sample of 12 endowments.

Our sample of 12 endowments outperformed the NACUBO Commonfund Study benchmark by roughly 3% when measured across 3-, 5-, and 10-year time periods. Over a shorter period, our sample underperformed NACUBO by -5.9% for the year ending Jun-2023 period. Differences are largely explained by the 48% average allocation to private equity by our 12 large endowments vs 23% average for all NACUBO constituents, as illustrated in Exhibits 10, 11 and 12 below.

Exhibit 9: the sample of 12-large US endowments outperformed NACUBO by roughly 3% across 3-, 5-, and 10-year periods

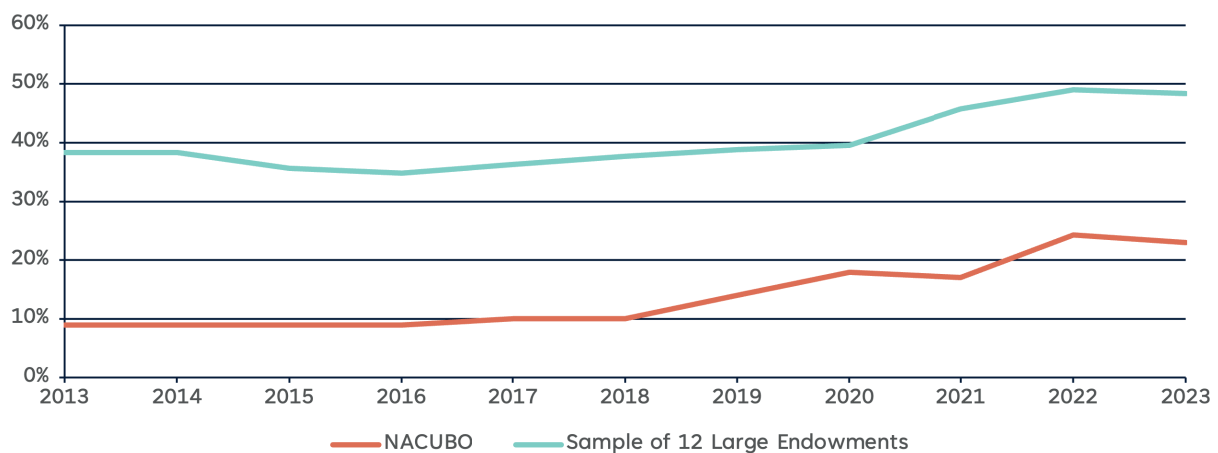
Period	Average of 12 Endowments	NACUBO	Difference
1-Year	1.8%	7.7%	(5.9%)
3-Year	12.3%	9.3%	3.0%
5-Year	10.1%	7.0%	3.1%
10-Year	10.0%	6.9%	3.1%

Source: NACUBO

Back in 2013, the average allocation to illiquids in the NACUBO group was less than 10%, compared to our sample that held nearly 40%. Fast forward to 2023, the NACUBO group had 23% in illiquids compared to our sample, which had 48%. So, while the gap closed by 4% there is still a 25% difference in the amount of illiquids held as of FYE 2023.

Exhibit 10: The average illiquid allocation for our 12-endowment sample is 25% higher than the median illiquid allocation for the NACUBO Commonfund group.

Average Illiquid Allocation for Endowment Sample %

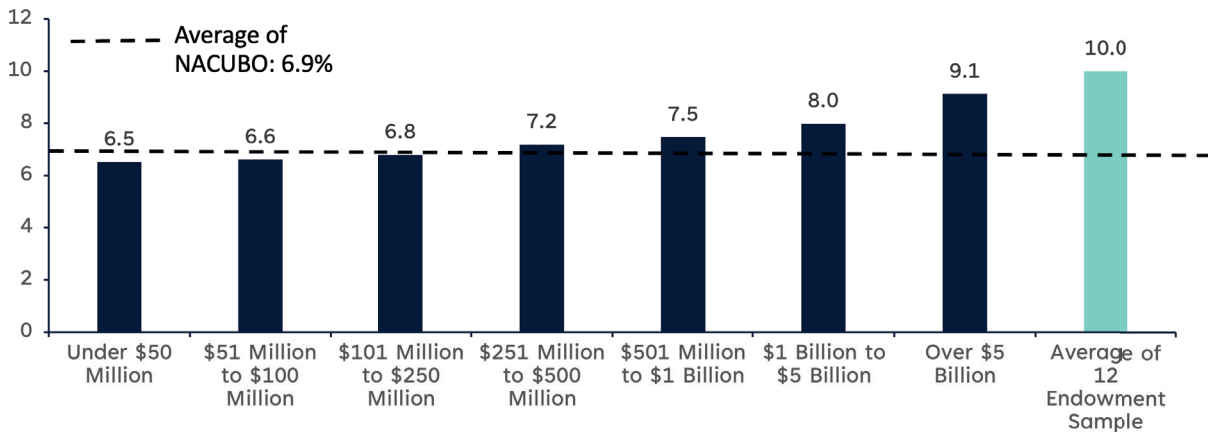


Source: NACUBO Commonfund Study of Endowments; True North analysis of publicly available information.

The impact of size is clear when looking at the 10-year performance of each size cohort in the Commonfund study (as seen in Exhibit 11). There is a clear correlation between size and performance, with institutions with greater than \$5B returning 2.6% more on average than those smaller than \$50M.

Exhibit 11: average 10-year performance is correlated to the size of the institution, with institutions over \$5Bn returning 9.1% on average, compared to institutions under \$50M returning 6.5%.

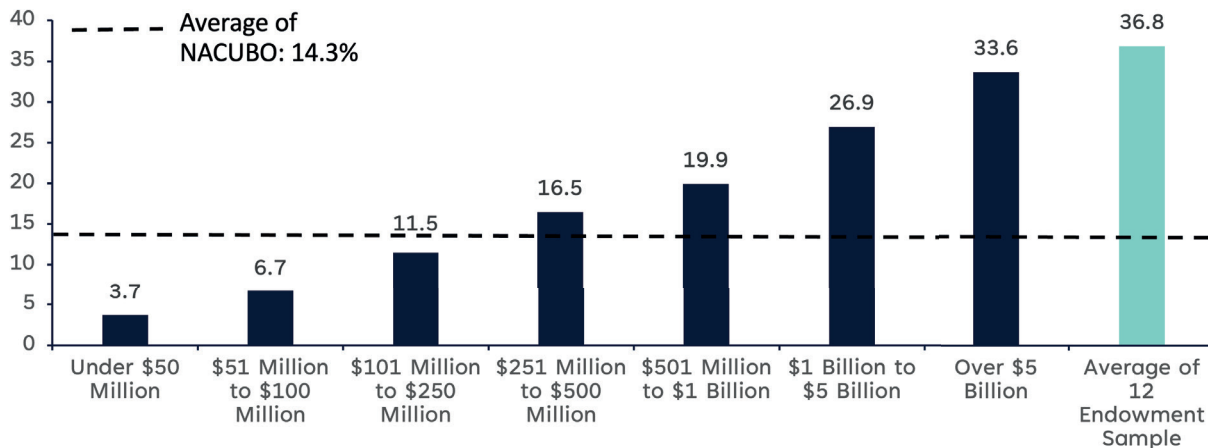
Average 10-year Returns for Endowments by Size %



Source: Commonfund Endowment Study

Exhibit 12: allocations to private equity scale with size of institution such that the larger the institution the larger the allocation to private equity.

2023 Allocations to Private Equity (private equity + VC + secondaries) %



Source: Commonfund Endowment Study

Note: average for NACUBO is an equal weighted average of all institutions in the sample. Does not include private energy infrastructure

Size clearly brings with it a performance difference which appears to be highly related to the scale of private equity allocation. We can only speculate that this relates to the size of the internal team that larger endowments can afford, and that team includes individuals with deep experience investing with private equity funds. With the growing popularity of outsourced investment offices or outsourced CIOs (OCIOs), we would expect to see smaller endowments closing the private equity allocation gap and the performance gap with larger endowments. As you can see in Exhibit 10 above, that gap is closing, but very slowly. The allocation difference was 30% in 2014 vs 25% in FY 2023. At this point in time, it would appear that size is still a helpful contributor to performance of these large endowments.

Conclusions

Conclusion #1: Outperformance or Alpha is becoming more difficult to generate for even the most capable of institutional investors.

The most important conclusion from this analysis is that value added in institutional investing is growing increasingly difficult. 120 basis points of outperformance over the last 10 years is, in our view, a solid return on the investment in these endowment teams. We estimate that the average expense ratio incorporating the cost of the in-house investment team is around 20-30 basis points¹. So, the 10-year return on the cost of the in-house investment team, 90 basis points, represents a 3.0-4.5x return on the investment in human capital. Obviously, the return on investment is less compelling over shorter time frames.

Exhibit 13: (same as Ex 5 above): Average University Endowment Performance over 1-, 3-, 5- and 10-year periods (for 12 endowments)

Period	Absolute Returns	Equiv. Net Equity Beta Benchmark		Asset Allocation Blended Benchmark	
	Average Absolute Performance	ENEB Benchmark	Alpha vs ENEB Benchmark	Asset Allocation Benchmark	Alpha vs Asset Allocation Benchmark
1-Year	1.8%	13.8%	(12.0%)	5.3%	(3.5%)
3-Year	12.3%	9.5%	2.8%	12.2%	0.1%
5-Year	10.1%	7.2%	2.8%	9.4%	0.7%
10-Year	10.0%	7.3%	2.7%	8.8%	1.2%

Source: True North Institute analysis of publicly available data

Alpha of 0.7% over 5 years, and near zero alpha in the last three years would be concerning for any institutional investor. There is nothing to say that this situation is confined to this universe of large university endowments. Based on our tracking of numerous large pensions and sovereign wealth funds, we expect this is not a story isolated to large US endowments. We expect that True North Institute whitepapers to follow this one, focused on other institutional investor groups will help to peel this onion further.

These endowments have some of the largest, most capable and long-tenured in-house investments teams in the institutional investment world. These teams are typically supported by an investment committee comprised of a “who’s who” of leading investment professionals who, in many cases, have a passion for helping their alma-maters, and devote significant time and effort. If these teams are experiencing these challenges, they will not be alone.

We cannot know what explains the shrinking alpha without annual asset class returns for each endowment. We do not have this information. We believe there are two most plausible explanations based largely on anecdotal information about their investment strategies and what we have seen more generally in the institutional investment world in the last five years. Firstly, investments in public equities may have been overweighted in recent years to non-US equities (including China via managers like the Ivy League favourite Hillhouse) and to smaller faster growing companies which suffered relative to the overall indices due to their hyper-sensitivity to rising interest rates. Chinese equities have lagged in recent years.

¹ Cambridge Associates- Investment Office Staffing, Oversight Costs, and Governance; <https://charlesskorina.com/cost-run-investment-office/>

The second possible explanation is that these institutions lagged the benchmarks for private equity and venture capital. Outperformance can be achieved from unique access to VC's like Sequoia, Benchmark and Accel, which we know are key positions with several of the endowments on our list, but we expect not with all. On private equity, the game is changing for what is required to beat the benchmarks. It is no longer just about accessing the long-standing large and mega buyout funds. Outperformance requires exposure to younger and smaller middle market buyout firms, extensive investing in fee free co-investments, opportunistically taking advantage of secondaries and managing cash-drag through leverage via lines of credit. Not all of the leading endowments are set up internally to manage private equity in this manner, especially those who still conform to a generalist philosophy with no dedicated private equity research professionals.

Conclusion #2: Total portfolio absolute returns are primarily driven by the overall risk budget of the portfolio including large allocations to illiquid asset classes – primarily comprising private equity

Total 10-year annual portfolio absolute returns ranged from 11.5% for MIT and 8.1% for Columbia; a 340 bp range. Most of this difference will be explained by average overall portfolio risk level (ENEB), the proportion of the portfolio allocated to illiquid asset classes (mostly private equity), and the proportion of illiquid assets allocated to venture capital. Everything else being equal, higher levels of portfolio risk and higher levels of illiquids should be rewarded by higher levels of returns over the long-term. As such, it should be no surprise that MIT, Yale and Princeton, rank in the top 4 for absolute returns given their allocations to illiquids and overall risk-levels (as shown in Exhibits 18 and 19).

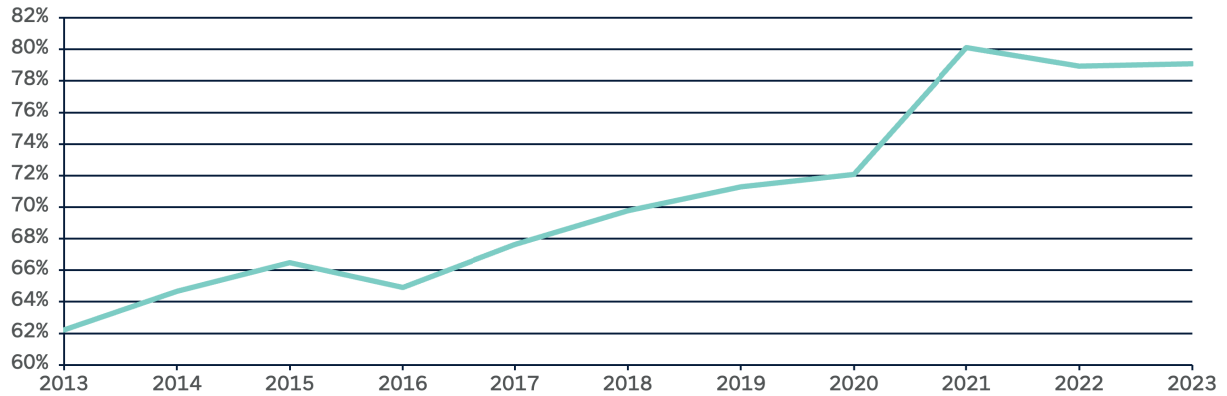
Average levels of equity-like risk (or equivalent net equity beta (ENEB) as defined in the back of this document) of 79% today are high relative to historical averages (see Exhibit 18). 10 years ago, the ENEB of the group was 62%, which rose to a high of 80% in 2021. Since ENEB measures the overall risk level of a portfolio, we can conclude that these endowments are more exposed to moves in the global risk markets today than historically.

This increase in overall portfolio risk reflects the gradual increase in allocations to private equity and venture capital including the rise in those two asset classes' values relative to the rest of the portfolio. In other words, risk has risen as a result of market movements and these endowments have not rebalanced risk down to firm risk budget targets as Partners Capital would normally do with client portfolios. The nature of private equity of course makes rebalancing difficult, particularly if the bulk of the private equity allocation is in venture capital funds, where the fund duration can be 10-15 years before large disbursements are made. Public equities are the usual source of rebalancing moves.

The result of these “creeping risk increases” are not just over-risking the full portfolio, but also higher allocations to private equity (37% allocation on average). Our ENEB estimates assume a market-weighted blend of 75% buyouts and 25% venture capital which arrives at an equity-equivalent beta of 1.3. In actuality, the level of venture capital is likely to be higher than our 25% assumption, based on the commentary of the endowments themselves, which means we are probably understating their portfolio risk as measured by ENEB.

Exhibit 14: Average ENEB for our large endowment sample has been steadily increasing since 2013, in part due to the increase in the allocation to private equity (leverage buyouts and venture capital).

Average ENEB for Endowment Sample

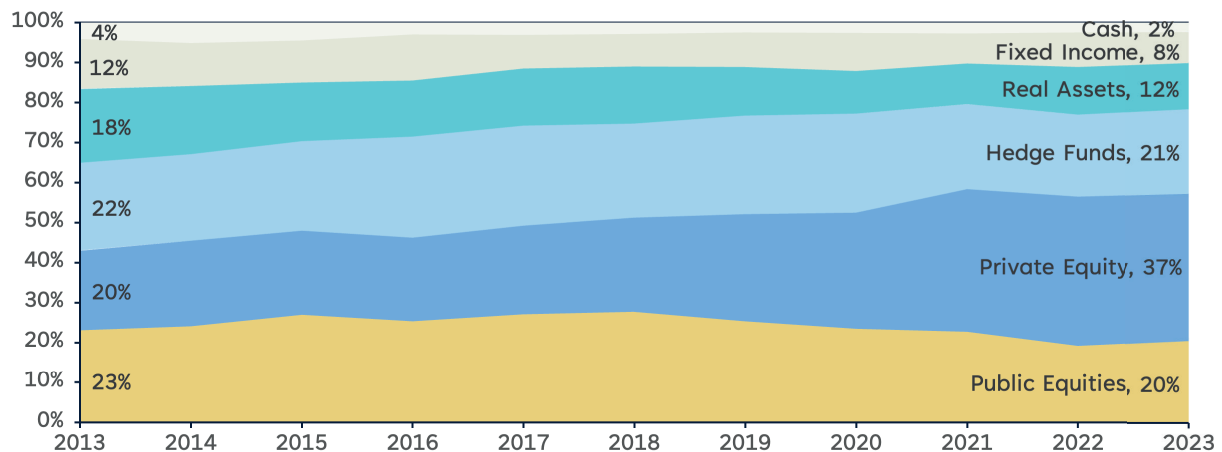


Source: True North Institute analysis of publicly available data

Over the last decade, private equity allocations have nearly doubled, from 20% in endowment portfolios to 37% in 2023 (see Exhibit 15). This has come at the expense of allocations to public equity, fixed income, and real assets. So, allocations to private equity including venture capital will likely be ahead of targets today as well, suggesting a slow down or pause in new commitments. The alternative is of course to engage in secondary sales which may not be a bad idea given that secondary prices have held up during the recent slowdown in private equity fund raising.

Exhibit 15: The average endowment asset allocation has 57% allocated to the combination of public and private equities with an increasing skew in favour of private equity.

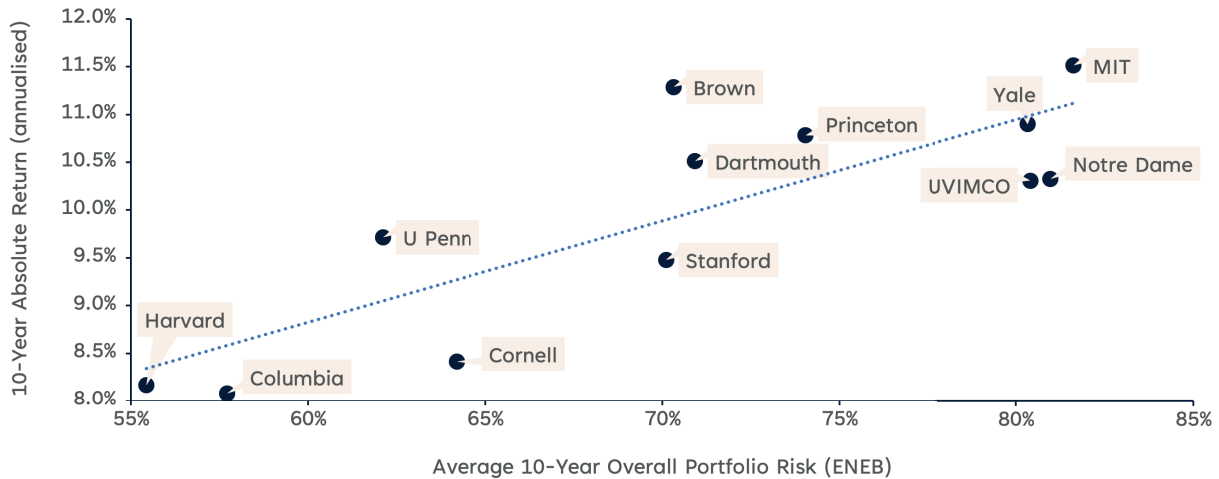
Asset Allocation %



Source: True North Institute analysis of publicly available data

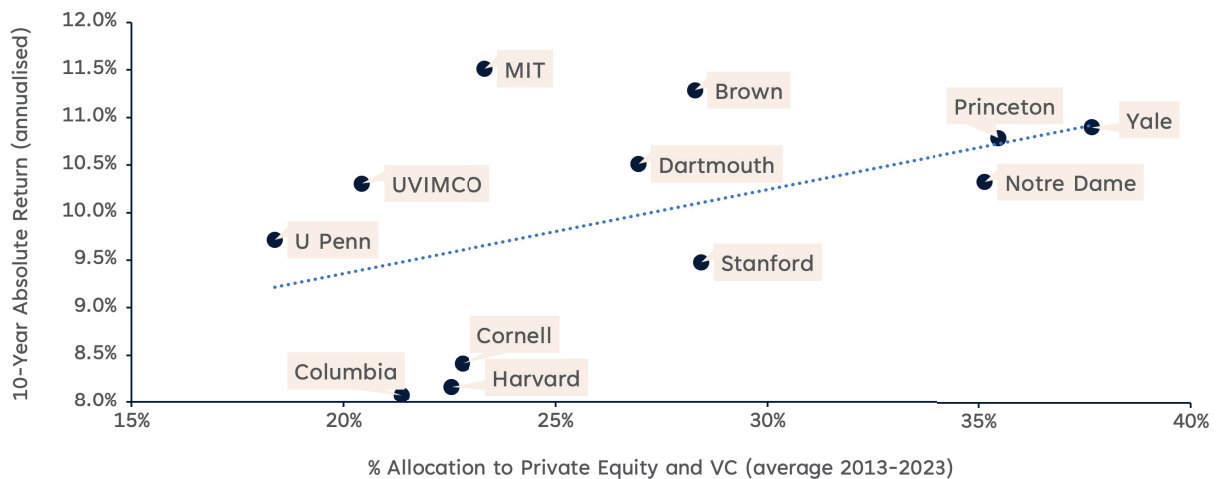
While common sense should be enough to prove that taking higher risk in the form of allocations to higher risk asset classes will result in higher returns, we plot in Exhibits 16 and 17, the relationship of 10-Year total portfolio returns with overall risk level (Exhibit 16) and allocation to private equity (Exhibit 17).

Exhibit 16: There is a positive relationship (R-Squared of 0.67) between the overall portfolio risk level and 10-year overall portfolio returns.



Source: True North Institute analysis of publicly available data

Exhibit 17: There is a moderately positive relationship (R-squared 0.22) between the amount of private equity exposure each endowment had, and the 10-yr overall portfolio absolute returns.

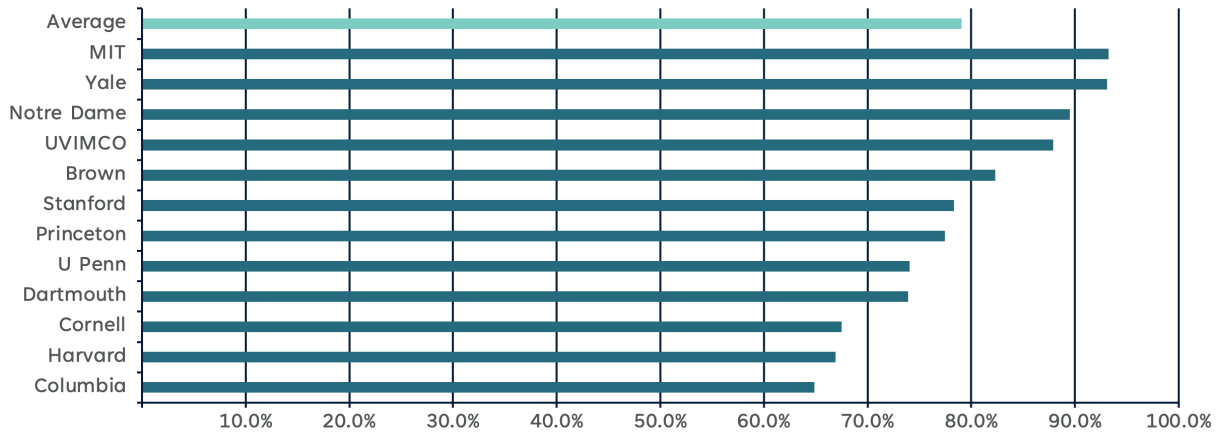


Source: True North Institute analysis of publicly available data

While we would not expect to see simple metrics like ENEB and private equity allocations to explain the majority of the difference in absolute performance across the 12 endowments, a simple multiple regression with these two variables provides an R-squared of 0.67, although only the ENEB factor is strictly seen as significant.

Exhibit 18: The latest reports suggest that equivalent net equity betas range from 65% for Columbia up to 93% for MIT

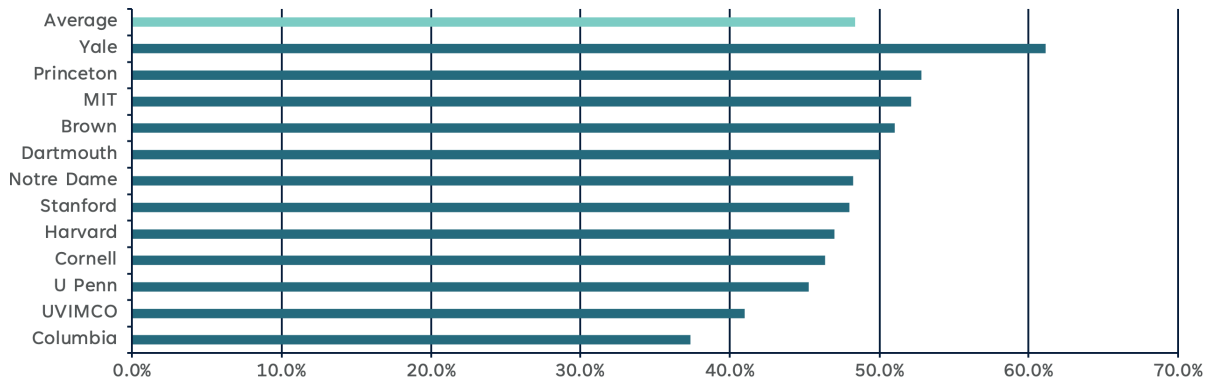
Equivalent Net Equity Beta: 2023



Source: True North Institute analysis of publicly available data

Exhibit 19: Total illiquidity budget as of FYE23 ranges from 61% for Yale at the high end down to 37% for Columbia at the low end.

% Allocation to Illiquid Investments: 2023



Source: True North Institute analysis of publicly available data. The definition of illiquid investments includes allocations to private equity, venture capital, property, private debt, resources and anything described as "real assets."

Exhibit 20 shows the expected returns for hypothetical portfolios with different portfolio risk levels (ENEB) and illiquid allocation combinations. A higher risk level allows investors to participate in a greater proportion of long-term equity market returns, while a higher illiquidity allocation allows investors to benefit from a greater illiquidity premium. This model embeds the 10-year asset class return assumptions for private equity, venture capital, private debt and private real estate. To illustrate the importance of these two dimensions to portfolio returns, we would plot Harvard at 48% illiquids and a 65% risk budget as one of the endowments with the lowest expected long-term returns or around 8.7%. In contrast, Yale with a 92% current risk level and a 62% illiquidity level, would be expected to generate approximately 10% net annual returns, all else being held constant. Obviously, this does not advocate for higher risk and higher illiquidity budgets across the universe of institutional investors as each institution will have its own unique situation

driving limits on each of these dimensions. Please see Partners Capital separate whitepapers on risk budgeting and illiquidity budgeting for some helpful tools and models for arriving at your own customised portfolio construction dimensions. These reside in the Partners Capital ICL on the website and are available to download.

Exhibit 20: portfolio returns should be influenced by the amount of overall risk the portfolio is taking as well as the size of the illiquidity budget, as illustrated in this Partners Capital table of hypothetical long-term forward returns.

Allocation to Illiquids	Portfolio Risk Level (Equity like risk or ENEB)							
	40%	50%	60%	70%	80%	90%	95%	100%
0%	6.3%	6.6%	6.8%	7.1%	7.4%	7.7%	7.9%	8.0%
10%	6.5%	6.9%	7.3%	7.6%	7.9%	8.1%	8.2%	8.4%
20%	6.8%	7.3%	7.8%	8.1%	8.3%	8.5%	8.6%	8.7%
30%	7.1%	7.7%	8.2%	8.5%	8.7%	8.9%	9.0%	9.1%
40%	7.4%	8.0%	8.6%	8.9%	9.1%	9.3%	9.3%	9.4%
50%	7.7%	8.2%	8.8%	9.1%	9.3%	9.6%	9.7%	9.8%
55%	7.8%	8.3%	8.9%	9.2%	9.5%	9.7%	9.8%	10.0%
60%	7.9%	8.4%	9.0%	9.3%	9.6%	9.9%	10.0%	10.1%
65%	8.1%	8.6%	9.0%	9.4%	9.7%	10.0%	10.2%	10.3%
70%	8.2%	8.7%	9.1%	9.5%	9.8%	10.2%	10.3%	10.5%
75%	8.4%	8.8%	9.2%	9.6%	9.9%	10.3%	10.5%	10.7%
80%	8.5%	8.9%	9.3%	9.7%	10.1%	10.4%	10.6%	10.8%

Source: Partners Capital; Illiquid investments is defined to include private equity (including VC), private debt and property in the allocations Partners Capital would allocate at each level of ENEB and total illiquidity budget.

Note: This is for illustrative purposes only. Hypothetical return expectations are based on simulations with forward looking assumptions, which have certain inherent limitations. Such forecasts are not a reliable indicator of future performance.

As most of you know well, private equity has been the key driver of absolute endowment returns over recent years, with large allocations to venture capital likely explaining the range of performance from private equity. We say likely, because only a few of the endowments provide a breakdown of private equity into venture capital and leveraged buyouts. We read anecdotes from others' reports to indicate where VC is at higher allocations. For example, in their 2023 report, Brown University made note of the larger than average impact from the university's exposure to early-stage venture capital, which represented some 75% of the overall private equity allocation, or 30% of the overall endowment asset allocation. We suspect that this allocation has been a key driver of Brown's performance, annualizing private equity returns of 20% over the last ten years, which is over twice the rate of return for the rest of the portfolio.

Venture Capital also appears to have been the major driver of absolute performance over the last 10 years for Princeton, Harvard, Yale, MIT and others. All of these institutions noted in their recent reports that they are seeing reverting venture capital valuations, after years of outsized gains, and that this reversion is having a material impact on recent overall portfolio performance. It seems reasonable to say that many of the largest US endowments have increased allocations to high returning early-stage venture capital funds, which paid dividends in years such as 2021 but hurt in 2022 and 2023.

We would argue that the world of private equity and venture capital have gone through a paradigm change in the last two years relative to the previous 13 years which benefitted from strong tailwinds in the form of low-cost borrowing, falling discount rates, and rising public equity markets which "raised all boats." The explosion of technological innovation appears intact, but the excesses of recent venture funding is providing more realism along with higher cost of capital as headwinds.

Accordingly, the “elephant in the Investment Committee meeting” today is the future allocation to private equity and venture capital. Partners Capital and the True North Institute, together have potentially done as much thinking on this topic as most sophisticated institutional investors and find there is much less certainty today than in the past around the range of expected returns from the asset class. Partners Capital’s solution is to diversify private markets allocations across private markets asset classes to include private debt and many different forms of private equity real estate. Within private equity, the focus is on the most “hands-on,” operationally oriented teams who have demonstrated that they are likely to be better owners of certain companies where their skills can accelerate earnings growth faster than the current owners. See Partners Capital whitepaper on The Future of Private Equity Investing in the Partners Capital Intellectual Capital Library in the PE asset class section.

The drivers of absolute performance as described above surprises no one. What is less transparent are the drivers of outperformance or alpha which we discuss below.

Conclusion #3: It is not clear that the large endowments are outperforming the average private equity and venture capital investor. High allocations to private equity do not translate into high overall portfolio alpha.

By allocating to private equity (including VC) and performing in line with the average private equity investor (e.g., in line with Cambridge Associates indices), these endowments, and any investor, should outperform public equities over the long term. But the aim of any private equity investor should not be to simply beat public equities, but rather to beat the average private equity investor. We cannot ascertain which endowments are beating the average PE investor as we do not have asset class performance figures for each endowment. We do go out on a limb here and assert that, given the high allocations to private equity, we would expect to see higher levels of overall endowment alpha if these endowments were beating the PE indices. Such endowments may be beating the PE averages, but this would point to negative alpha in the remainder of the portfolios where large or small amounts of alpha are rarely found over the long term.

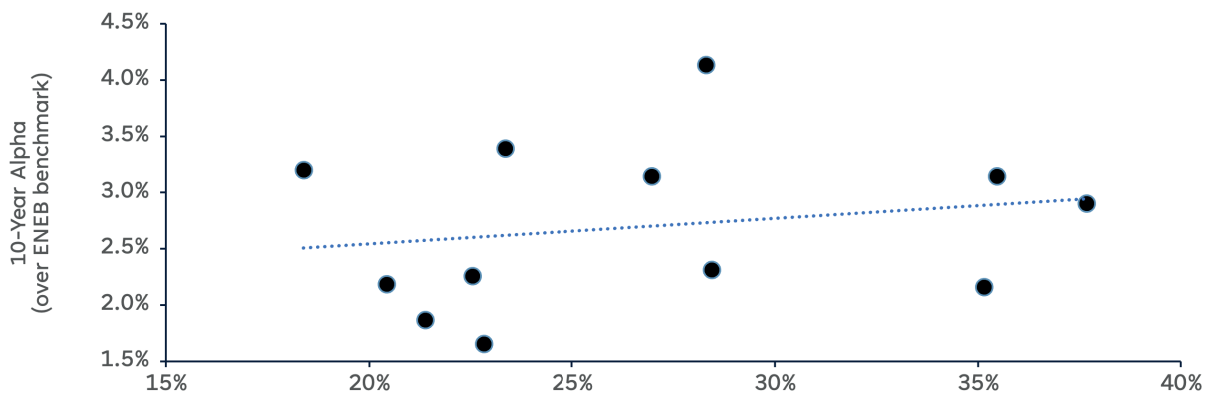
High allocations to private equity and venture capital asset classes theoretically provide a greater opportunity for manager selection alpha. This is generally proven with charts showing the wide dispersion of performance of the top quartile managers vs the bottom quartile in private equity vs public equity, where the latter sees very narrow dispersion. This whitepaper’s analysis of endowment returns suggests to us that dispersion is not easily converted into outperformance vs the average performance of the asset class.

Historically, endowments investing in private equity and venture capital have earned higher absolute returns as we discussed above. Giving up liquidity does not guarantee that the investor will outperform public equities and other liquid asset classes. But this set of endowments appear to have earned a higher return as a result of their illiquid PE and VC investments; i.e., it does appear that they have earned an illiquidity premium. However, we cannot prove that they have outperformed the average private equity or VC investor.

Just as high allocations to private equity and VC do not guarantee alpha over the average asset allocation benchmark, overall portfolio risk level does not explain much of the alpha dispersion. In other words, you can rank high on overall alpha, but still have relatively low overall portfolio risk or ENEB. This implies that the endowment with a low-risk budget needs to be particularly successful in finding significant manager alpha in lower risk asset classes like hedge funds and property.

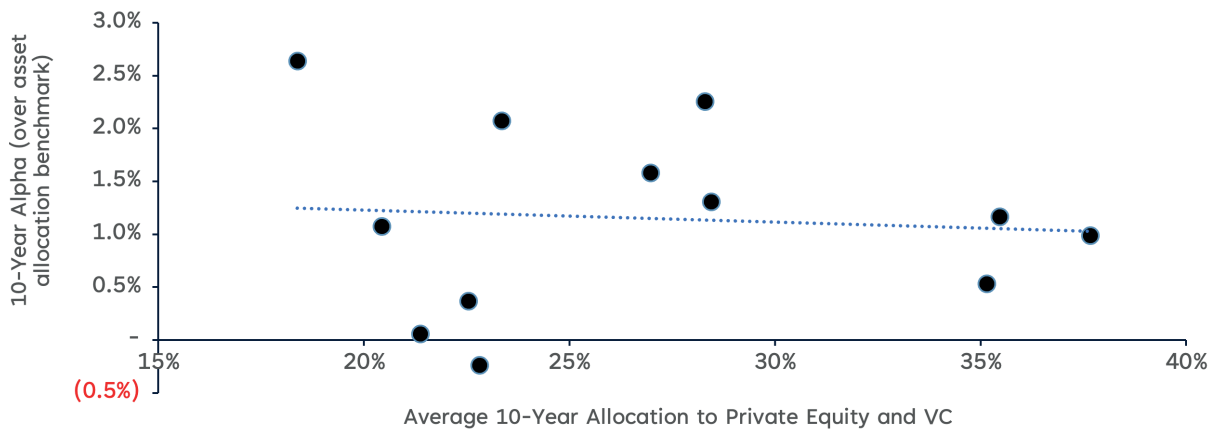
Exhibit 18 above shows the overall portfolio risk levels as of FYE 2023 range from approximately 65% equivalent net equity beta (ENEB) for Columbia and 93% for MIT, against an average of just under 80%. Looking at the average risk level over the last 10 years shows a wider range, as we saw many of the 12 started the decade nearer the 55% level. Harvard had the lowest back in FY2013 at approximately 40% ENEB, while Yale, MIT, Notre Dame and Virginia started the decade with relatively high risk of between 70 – 80% ENEB. These different risk budgets will explain total portfolio absolute return differences, but not alpha differences. Proof of this is that we have seen endowments ranking high on total portfolio absolute performance due to their relatively high overall risk level, but they rank among the bottom three on alpha vs the asset class benchmark. So, simply by allocating to private equity or other illiquid asset classes does not guarantee a high slot on the alpha ranking table as you can see from Exhibit 21 and 22. There is no meaningful relationship (R-Squared 0.04 for ENEB benchmark and 0.01 for asset allocation benchmark) between the amount of private equity exposure each endowment had, and the amount of alpha earned per year.

Exhibit 21: There is no meaningful relationship (R-Squared 0.04) between the size of allocations to private equity (leveraged buyouts + VC) and overall portfolio alpha relative to the ENEB benchmark.



Source: True North Institute analysis of publicly available data

Exhibit 22: There is no meaningful relationship (R-Squared 0.01) between the amount of private equity exposure each endowment had, and the amount of alpha earned per year over the asset allocation benchmark.



Source: True North Institute analysis of publicly available data

High volatility of returns experienced over time by each endowment may be an indication of high allocations to late-stage venture capital and/or smaller, young tech public company exposure. It was in these asset classes that the tech bubble enlarged most, growing enormously from 2019 to 2021, only to see 30-50% levels of declines in 2022 and 2023. The heat map in Exhibit 23 is our attempt to distinguish between underestimated beta (e.g., more VC in the PE, more small cap tech equities than the index) and alpha. Quite simply, if what goes up a lot then comes down a lot, that could be just higher risk. This will leave the overall portfolio with a higher absolute return from higher beta, not from superior asset managers. Brown appears to have benefited from the growth cycle and not given much back, which feels like alpha to us (for now). This picture looks good for most of the endowments in the table as there are almost no major “give-backs” in 2022 and 2023 after the extraordinary run up from 2019 to 2021. There does appear to be a correlation between these spikes and 5-year alpha, which we do not show here.

Exhibit 23: The heat map of annual absolute returns over the 5-year “tech bubble” cycle shows those endowments with strongest absolute returns in 2019 - 2021 have not yet seen large mark downs. This leaves them as among the higher alpha generators of this 5-year period. If this was just “hidden beta,” we would have seen larger markdowns in 2022-23.

	2019	2020	2021	2022	2023	5Y Absolute Return
Brown	12.4%	12.1%	51.5%	(4.6%)	2.7%	13.3%
UVIMCO	5.8%	10.1%	49.0%	(4.7%)	2.0%	11.0%
MIT	8.8%	8.3%	55.5%	(5.3%)	(2.9%)	11.0%
Dartmouth	7.5%	7.6%	46.5%	(3.1%)	1.6%	10.8%
Notre Dame	5.0%	7.4%	53.2%	(6.9%)	1.3%	10.3%
Yale	5.7%	6.8%	40.2%	0.8%	1.8%	10.2%
Princeton	6.2%	5.6%	46.9%	(1.5%)	(1.7%)	9.8%
Stanford	6.5%	5.6%	40.1%	(4.2%)	4.4%	9.5%
U Penn	6.5%	3.4%	41.1%	-	1.3%	9.5%
Cornell	5.3%	1.9%	41.9%	(1.3%)	3.6%	9.3%
Harvard	6.5%	7.3%	33.6%	(1.8%)	2.9%	9.1%
Columbia	3.8%	5.5%	32.5%	(7.8%)	4.7%	7.0%
Average	6.7%	6.8%	44.3%	(3.4%)	1.8%	10.1%
Cambridge Associates Blend	15.6%	6.6%	61.4%	4.7%	3.4%	16.6%

Source: True North Institute analysis of publicly available data

Note: Cambridge Associates Blend is 75% Cambridge Associates Buyout + 25% Cambridge Associate Venture Capital

This lack of a “give back” as shown in Exhibit 23 would lead us to expect significant alpha from the PE and VC allocations. However, only three endowments earned more than 1% average annual alpha in the 5-year period ending June 2023, as shown in disguised form in Exhibit 8 toward the front of this paper. This would indicate that this pattern was not unusual for the private equity and venture capital investors generally (i.e., the benchmarks demonstrated similar performance).

We of course acknowledge, what many investors worry to be true, that valuations of both private equity and VC may see the ‘other shoe drop’ in the form of further mark downs in FY24 and FY25. This would prove that the alpha is really beta in disguise.

Conclusion #4: We do not assume that private equity and venture capital will deliver the same level or consistency of returns in the future. Endowments with more diversified sources of illiquidity premium may outperform in the future.

The environment has changed with high interest rates expected to persist and investor caution to cast a cloud on venture investing. With average borrowing costs rising from 8% to 12% for buyouts, this mathematically drops expected returns from 13.7% to 12.4% assuming an 8% EBITDA growth rate over a 5-year holding period, as you can see in Exhibit 24.

Exhibit 24: The rising cost of debt lowers returns by a calculatable amount.

Partners Capital		EBITDA Growth - (5.00-Year Hold)				
LBO Model		4.0%	6.0%	8.0%	10.0%	12.0%
Cost of Debt	8.0%	8.6%	11.2%	13.7%	16.1%	18.5%
	10.0%	7.9%	10.5%	13.2%	15.7%	18.1%
	12.0%	7.7%	9.7%	12.4%	15.1%	17.6%
	14.0%	7.1%	8.7%	11.5%	14.3%	17.0%
	16.0%	5.5%	7.7%	10.5%	13.4%	16.2%

Source: Partners Capital LBO Model

Similarly, with a higher cost of capital, the threshold for what makes for an attractive venture capital investment rises.

There is much less certainty today than in the past around the range of expected returns from the asset class. We note that the 12 endowments have on average 37% in private equity (including VC) and 12% in real assets, but no meaningful allocations to private credit. Partners Capital's solution is to diversify private markets allocations across private markets asset classes to include private credit and many different forms of private equity real estate. Within private equity, the focus is on the deepest teams who have demonstrated that they are likely to be better owners of certain companies where their skills can accelerate earnings growth faster than the current owners. See the Partners Capital whitepaper on The Future of Private Equity Investing in the Partners Capital Intellectual Capital Library in the PE asset class section.

In summary, this exercise served to reinforce the key principles of the endowment model as articulated below.

1. High static risk pays off in the long run
2. Diversification across asset classes avoids the worst of outcomes (as evidenced by the narrow range of absolute returns and alpha)
3. High allocations to illiquid asset classes have benefitted investors, but new strategies are required and expect lower returns
4. Manager selection skill remains at the core of the endowment model, but even veteran teams are finding it more difficult

However, these conclusions should lead all institutional investors who have followed the endowment model or not, to think hard about what evolutionary changes should be incorporated into investments strategies going forward that are not as dependent upon private equity and venture capital continuing to perform as they have been in the past.

Appendix

Definitions & Methodology

Alpha. We refer to this as outperformance, value-added and excess returns. Partners Capital and the True North Institute were both conceived out of strong belief that much of the cost and effort of investment management is wasted and shifts too much value away from the asset owner in favour of the asset manager. Alpha calculations are therefore quite logically at the heart of our being. The very essence of the calculation is the return in excess of what can be done without human intervention beyond constructing a multi-asset class portfolio from largely low-cost passive vehicles that successfully achieve average asset class returns, by design.

The controversy about what is passively replicable comes when we discuss private equity and property. In most other asset classes, there are investible instruments that achieve average asset class returns. In private equity and property, there are costly fund of fund vehicles that generally achieve average private equity and private property asset class returns that are accessible to lean institutional investment teams. Accordingly, we quantify alpha with two benchmarks, our equity-like-risk-based benchmark which is investible and our asset allocation benchmark which is not investible.

Equity-like-risk-based benchmark. This benchmark converts the asset allocation of each endowment into a single equity equivalent risk measure (what we call equivalent net equity beta or “ENEB”) and applies this to the performance of a the MSCI ACWI global equity index. ENEB is defined below. This is an investible benchmark to the extent that, for example, a 70% ENEB risk level can be replicated with 70% of the capital allocated to public equities and 30% to cash. This benchmark gives the endowment team credit for the performance improvement from allocations to illiquid asset classes, which are being benchmarked against liquid alternatives. Hence, the illiquidity premium is included in the calculated amount of alpha.

Asset Allocation benchmark. The second benchmark is a blended set of asset class indices’ performance, weighted by the asset allocation of the endowment in each year. There are two versions of the asset allocation benchmark – one using a set of indices that may not necessarily be investible, and the other only using investible indices. We will only use the non-investible asset allocation benchmark as the ENEB benchmark replicates index-based performance that is very close to that of an investible multi-asset class benchmark. The asset class benchmarking methodology is fraught with sources of potential error and misguided conclusions, but we believe it creates a more meaningful view on performance to the extent that it distinguishes outperformance over and above asset class average performance. Below, and in the footnotes, we show the benchmarks we have chosen for each asset class.

Asset Allocation Data Sources for each endowment

Endowment	Primary Source	Section of Report	Notes
Brown	Brown University Endowment Report	Asset allocation report	
Columbia	Columbia University Consolidated Financials	Long Term Investments Fair Value Report	Columbia list \$14.7B of asset held at fair value as of 2023 compared to \$13.6B of reported endowment AUM
Cornell	Columbia University Consolidated Financials	Long Term Investments Fair Value Report	Cornell list \$10.7B of assets held at fair value as of 2023, compared to \$10B of reported endowment AUM
Dartmouth	Dartmouth University Endowment Report	Asset allocation report	
Harvard	Harvard Management Company Message from the CEO	Asset allocation report	Prior to 2018, Fair Value Reports were used to estimate asset allocation
MIT	MIT Report of the Treasurer 2013 – 2023	Long Term Investments Fair Value Report	MIT list \$30.6B of assets held at fair value as of 2023, compared to \$23.5B of reported endowment AUM
Notre Dame	University of Notre Dame Annual Report	Long Term Investments Fair Value Report	Notre Dame list \$21.0B of assets held at fair value as of 2023, compared to \$20.3B of reported endowment AUM
Princeton	Princeton University Report of the Treasurer	Asset Allocation Report	
Stanford	Stanford University Investment Report	Merged Pool Policy Asset Allocation	
U Penn	University of Pennsylvania Annual Financial Report	Long Term Investments Fair Value Report	U Penn list \$23.1B of assets held at fair value as of 2023, compared to \$21.0B of reported endowment AUM
UVIMCO	University of Virginia Investment Management Company Annual Report	Long Term Pool Strategy Allocation Report	
Yale	The Yale Endowment Report	Asset allocation report	Post 2021, Fair Value Reports were used to estimate asset allocation

Asset class benchmarks are chosen based on assumptions about the strategies that each endowment uses. These assumptions are based on the publicly available information contained with annual reports, letters to the University, media articles, and other. The list of benchmarks is included at the beginning of this paper.

Benchmarks (including non-investible)

Domestic Equities	S&P 500 NR Index
International Equities	MSCI AC World ex USA NR USD
Developed Markets	MSCI World NR LC
Emerging Markets	MSCI EM (Emerging Markets) NR USD
Global Equities	MSCI AC World NR LC
Absolute Return	0.1x MSCI ACWI NR LC + 0.9x 3m US T-Bills
Long/Short Equity	½ MSCI ACWI NR LC + ½ 3m US T-Bills
Leveraged Buyouts	Cambridge Associates U.S. Leveraged Buyout
Venture Capital	Cambridge Associates U.S. Venture Capital
Private Equity	¼ Cambridge Associates U.S. Venture Capital + ¾ US Leveraged Buyouts
Hedge Funds	0.1x MSCI ACWI NR LC + 0.9x 3m US T-Bills
Natural Resources	S&P Global Natural Resources Index
Real Estate	Preqin Real Estate Opportunistic Index (lagged 3 months) TR LC
Bonds/TIPS	Barclays Capital US Treasuries 5-10 Year TR
Corporate Debt	Barclays Capital Global Corporate BBB TR
Private Credit	State Street Private Debt - Mezzanine TR USD
Fixed Income	Barclays Capital US Treasuries 5-10 Year TR
Cash and short-term	US Treasury Bills 3Mth

Notes: “AC” stands for all country, which indicates the index covers 47 of the world’s largest equity markets. “NR” stands for net return which indicates that it includes dividends net of taxes withheld. “LC” stands for local currency returns with no currency gains or losses from taking return back to USD or any other currency. “TR” stands for Total Return which implies the total of interest income, gains and losses in the case of debt asset classes. In the case of real estate, it includes rental income, gains and losses.

Private Equity Benchmark

The most important component of the asset allocation benchmark for any given endowment is the private equity benchmark. Only Yale breaks out their proportion of venture capital as an asset class separate from private equity (buyouts). We have had to estimate the mix of VC vs buyouts for each of the other 11 endowments. NACUBO collects this information and reports it in aggregate. The table below shows the %'s reported by endowments with AUM > \$1B.

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Average
% VC	25%	29%	37%	37%	37%	42%	40%	36%	40%	40%	39%	37%
% LBO	75%	71%	63%	63%	63%	58%	60%	64%	60%	60%	61%	63%

We have used the starting mix of 25% VC and 75% LBO in the benchmarking for each of the 10 years. We modelled the difference between 25/75 and 50/50 with the result being 0.9% average annual alpha at 50/50 and 1.2% average annual alpha at 25/75 VC/Buyouts. This gives us a conservative bias to the risk adjustment, potentially overstating alpha.

We have chosen to use the Cambridge Associates VC and Buyouts benchmarks as opposed to Preqin, Pitchbook, State Street, Burgiss or others. Cambridge Associates is generally viewed as the tougher benchmark given the embedded survivorship bias. The Cambridge Associates blended PE and VC index return from calendar years 2013-23 was 1.7% p.a. higher than State Street's which is a benchmark of comparable quality to Cambridge's benchmark. For the five calendar years ending 2023 the difference has Cambridge 0.7% p.a. higher than State Street. For the three years ending 2023, State Street is 0.4% p.a. higher than Cambridge. Applying the average private equity (including VC) allocation over 10, five and three years, increases the average alpha from the top 12 endowments from 1.2% to 1.6% over the last 10 years, 0.7% to 0.9% over five years and decreases the 0.1% to zero over three years. We believe the combination of the conservative 25/75 VC/Buyout mix assumption and the tougher Cambridge Associates benchmark gives us the most balanced measure of average private equity performance.

Illustrative calculation of an asset class benchmark and the alpha in a given year. For each endowment and for each fiscal year from 2014 to 2023, we collect the average asset allocation from publicly available information provided by the endowment. This will be from annual financial statements (including the fair value reports), special annual reports from the endowment investment management company, or from other public pronouncements. In some cases, the reports refer to "target allocation" and in other cases, it is the actual valuation being reported. The fair value reports may have assets in addition to just the endowment, but these differences have tended to be minor. Column A in the table below, is the average asset allocation from the beginning of the fiscal year and the end of the fiscal year. For each asset class, as you can see in Column B below, we attempt to match the best index and use it as the benchmark for that asset class. The product of column A and B is the contribution to overall benchmark performance from each asset class. The sum of these products is the total benchmark return for the year. In the FY 2023 Endowment E illustration below, you can see that the benchmark sums to 7.1% for the year, vs the actual reported performance of 4.4%. The resulting alpha calculation is the difference or a negative 2.7%.

Illustration of asset class benchmark and alpha calculation for Endowment E in 2023

Asset Class	Benchmark Name	A Average Allocation across 2022-2023)	B Benchmark Performance in 2023 (Jun-Jun)%	C = A x B Contribution to Annual 2023 Return
Fixed Income and Cash	US Treasury Bills 3M	9.0%	3.6%	0.3%
Domestic Equities	S&P 500 NR Index	8.0%	19.6%	1.6%
International Equities	MSCI World ex USA NR USD	16.5%	15.5%	2.6%
Absolute Return	0.1x MSCI ACWI NR w DM 100% Hedged to USD + 0.9x 3m US T-Bills	18.5%	4.9%	0.9%
Private Equity	0.25 x CA U.S. Venture Capital + 0.75 x CA Leveraged Buyout	37.5%	3.4%	1.3%
Real Assets	Preqin Real Estate Opportunistic Index (lagged 3 months) TR LC	10.5%	4.7%	0.5%
Total Asset Allocation Benchmark Return				7.1%
Endowment E Actual Reported Return for FY 2023				4.4%
Alpha (Excess or Shortfall)				-2.7%

Equivalent Net Equity Beta (“ENEB”) is Partners Capital’s standard measure of portfolio risk expressed in terms of public equity-like risk. ENEB is essentially the sum-product of our estimates of equity equivalent risk for each asset class and the average allocation to each asset class. Our estimates of each endowment’s ENEB over time are based on their reported asset allocation at each year end. Individual asset class equity beta assumptions are based on correlations of past returns of a given asset class (e.g., government bonds, liquid credit, property) and the past returns of the MSCI ACWI equity index. We will judgmentally set betas based on more recent relationships and other factors. The assumed equity beta may not accurately reflect the true equity-like risk for any given asset class.

For example, for private property investments, our analysis has concluded that they have a beta of approximately 0.40 to public equities based on long-term historical relationships. So, if over the long term, we expect to see equities rise by 8% per annum, only 3.2% of this is driven by the same or similar factors driving equity returns (e.g., growth of the global economy, inflation, interest rates, etc.). If property is expected to earn 10% over the long-term, the other 6.8% is assumed to be derived from factors uncorrelated to what drives equity returns. We maintain similar equity beta estimates for all asset classes as shown in the Endowment J ENEB illustration below.

For buyouts, growth equity/late-stage venture capital and early-stage venture capital, Partners Capital has recently completed a major piece of research to arrive at, what we believe to be, the best estimate of the risk of these three asset classes as measured by equivalent net equity beta (ENEB). This whitepaper can be found in the Partners Capital Intellectual Capital Library (ICL) at partners-cap.com. The summary table from that whitepaper is copied below. For Buyouts we use 1.1 reflecting an equal blend of middle market and large cap buyouts, and 1.6 for venture as shown below.

Recommended Forward Looking Betas for Five Private Equity Sub-Asset Classes

Strategy	Beta to S&P 500
Lower to Middle Market Leveraged Buyouts	1.0
Large Cap Leveraged Buyouts	1.2
Growth Equity	1.3
All Buyouts (assume 20/50/30 weighting)	1.2
Venture Capital (Early Stage)	2.3
Venture Capital (Late Stage)	1.2
All Venture (assume 35/65 weighting)	1.6

Source: Partners Capital whitepaper "Adjusting Private Equity Returns using Strategy-level Betas (March 2021)".

Note: Lower middle market deals use meaningfully lower leverage than large cap buyouts which explains the lower observed beta of LMM deals.

Below we illustrate a sample calculation of equivalent net equity beta (ENEB) for Endowment J as of the end of FY 2023. We calculate the sum product of the average equity beta for each asset class (column A) and the FYE 2023 asset allocation (column B) for Endowment J comes to an ENEB of 0.68 (column C sum).

Asset Class	A		B		C = A x B
	ENEB (% of equity- like risk)	2022 Asset Allocation	2023 Asset Allocation	Average Asset Class (2022-23)	Contribution to Portfolio ENEB
Public Equity	100%	16%	11%	14%	13.7%
Private Equity (0.25 VC + 0.75 LBO)	128%	38%	39%	38%	48.9%
Hedge Funds	10%	28%	31%	30%	3.0%
Real Estate	40%	5%	5%	5%	2.0%
Natural Resources	30%	1%	1%	1%	0.3%
Bonds/TIPS	0%	7%	6%	6%	0.0%
Real Assets	40%	1%	2%	2%	0.6%
Cash and Other	0%	4%	5%	4%	0.0%
Portfolio Level ENEB estimate					68.4%

ENEB Benchmark Calculation for Endowment J in FY 2023

	Average Index Weighting (2022-23)	FY 2023 Return	Contribution
MSCI ACWI Equity Performance in FY 2023	68.4%	16.5%	11.2%
Cash (3-month Treasury Yield in FY 2023)	31.6%	3.6%	1.1%
ENEB Benchmark Calculation in FY 2023	100%		12.4%
Actual Endowment FY 2023 Performance			2.90%
Alpha based on ENEB Benchmark			-9.5%

In the ENEB illustration above, the 68% ENEB calculation is referenced to construct a passive investible index of 68% invested in a passive global equities index and 32% in cash (3-month Treasuries). 68% is the average ENEB for the full fiscal year ending June 2023 based on averaging the asset allocations from YE22 and YE23. We then use that ENEB to calculate the ENEB benchmark performance for FY 2023 by multiplying the 16.5% MSCI ACWI equity performance for FY23 by the ENEB of .684 which has us expecting 11.2% from equities. We then add the contribution from investing the remaining 32% in cash at a 3.6% average yield or 1.1% contribution. This gives us a benchmark return of 12.4% from the sum of the equities (11.2%) and cash (1.1%) contributions. This was a tough year for all endowments relative to public equities, so the 2.9% reported return falls 9.5% short of the ENEB benchmark.



Disclaimer

The value-added performance calculations in this document are being shared for illustrative purposes only. The assumptions used in our calculations may not accurately reflect the actual assets owned by the endowment and decisions made by the endowment investment management company. For example, the assumptions about average asset allocation may not reflect tactical asset allocation choices made by the management company during the year. Furthermore, the choice of benchmark for each asset class is based on available information about the endowment strategy but may not adequately reflect the total or type of risk being taken. Risk overlays and other hedges are not included in this analysis and

may have a material effect on performance. Finally, the reporting periods for private equity and private debt may be different depending on the reporting standards each endowment uses. Each of these issues, and others not mentioned, could create basis risk between the illustrated value-added and the actual true value added.

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